

Experiment 949
Technical Note No. xxx

Addition to Bad Run List via `bad_run_02.function`

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Abstract

While investigating the 2-beam background, one event that passed all of the Kaon-Kaon Rejection cuts had no beamwire information. This note details the reason runs 48534, 48542, 48543, 48547 should be added to the bad run list. This is a loss of $KB_{Live} = 6.4 \times 10^9$ which is 0.38% of the current KB_{Live} total as of 28 August 2006.

1 Introduction

During a visual scan of events, I noticed that event 9987 from run 48534 did not have any beam wire information in the paw photo plot. It was suggested that maybe the beamwire chamber was off during the entire run. I plotted the number of beamwire hits (ntuple variable *nbmbw*) for this run and saw no hits for any events. This indicated that the beamwire chambers were not working properly for at least one run. Plots of the number of hits in the beam-wire chambers in runs adjacent to run 48534 were done in Figure 1.

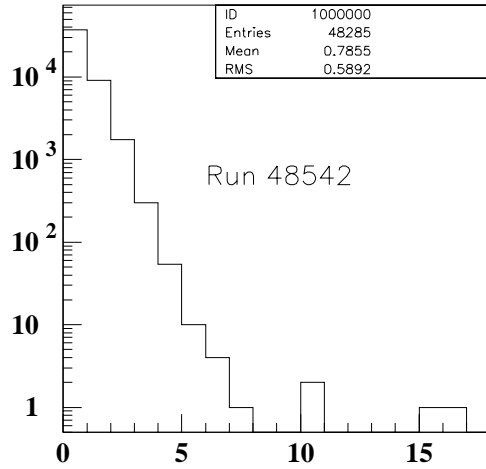
Run 48534 isn't plotted because all events have 0 hits which means zero voltage on the beam-wire chambers. As seen in Figure 1 runs 48542 and 48543 have hits in the beam-wire chambers, but the total number of hits are very small. This indicates that there was some high voltage, but not the optimal voltage is not set or a possible problem with the gas mixture in the chamber. The number of hits in run 48547 shows that the beam-wire chambers recovered sometime during the run, notice there are a large number of events with zero hits.

All other runs between 48534 to 48547 (besides the runs that will newly be added to the bad run list) are either already on the bad run list or non standard mix runs, see Table 1

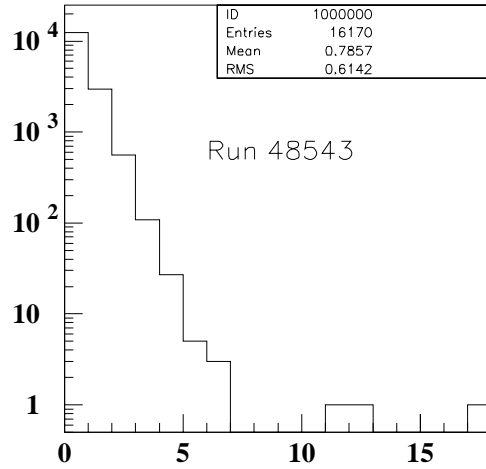
Run Range	why on bad run list
48533	not standard mix
48535:48540	not standard mix
48541	< 500 events
48544:48546	< 500 events
48553	< 500 events

Table 1: List of runs currently on the bad run list.

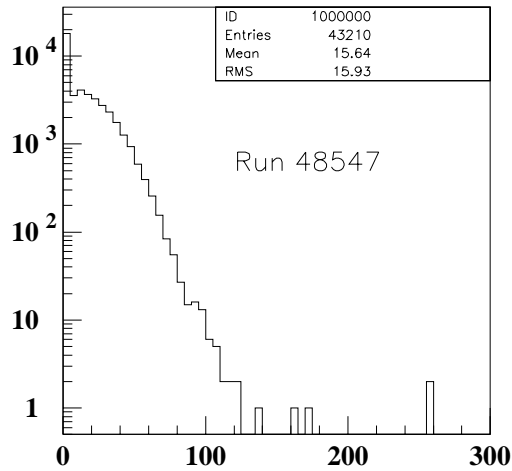
2006/08/28 15.46



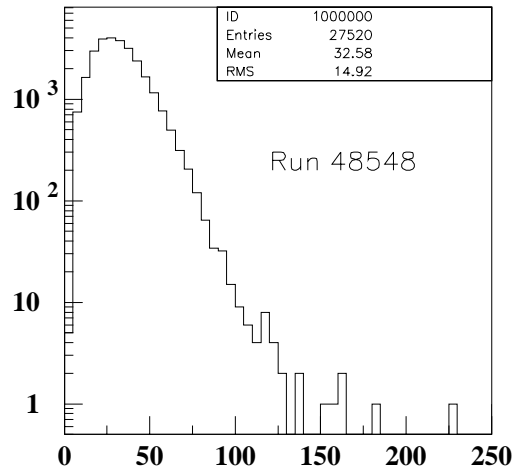
nbmbw



nbmbw



nbmbw



nbmbw

Figure 1: Number of hits in Beam-Wire Chambers for runs of interest. Run 48538 is a typical run that indicates that the Beam-Wire Chambers are in working order after run 48547.

2 Elog

These are the entries I found in the Electronic Logbook during the Beam-Wire problems. As seen the BWPC went down when the isobutane tank was changed. This also effected the RSSC.

Date	Run	Author	Type	System	Subject
Fri Mar 29 16:52:34 2002	48531	djaffe, hujl	Glitch	Detector	RSSC HV off
Toshio advises us to turn off RSSC HV for at least one hour. We will take ECKmu2 data and do trigger tests until they are back to nominal voltage. also, the BWPC HV were turned off due to the same reason. this situation could last for half a day...					
Fri Mar 29 18:01:11 2002	48534	hujl	Glitch	Detector	RSSC, BWC HV
now all RSSC and BWC HV are set to 2KV, and this situation will last until 11:30pm tonight.					
Fri Mar 29 18:01:27 2002	48533	li	Routine	General	RSSC isobutane
Since the isobutane bottle change this afternoon at about 1430 by JoeC who purged it for about 30-40sec as the usual procedue, the RSSC system has slowly losing HV to the point they had to be turned off. After consulting with Toshio, we (George,Shaomin,Jingliang and Kelvin) shut off isobutane to the BWC and RSSC (BWC has HV off) and shut off Ar to the RSSC at the TRIUMF control panel. Then the isobutane bottle was purged for 1 min. All gas settings were then reset. Afterward, Jingliang set HV on all RSSC's and BWC's to 2 KV per Toshio.					
Sat Mar 30 00:16:23 2002	48546	hujl	Modification	Detector	RSSC, BWC HV.
Following Toshio's procedure, I raised HV to 3.3KV (except 5a). Only module 6 tripped occasionally but rest of them were pretty stable. Then, set the all modules to the nominal values and found some could not hold: 5a: now set to 3.29KV 6 : now set to 3.25KV 10: now set to 3.43KV 5b: now set to 3.35KV several attempts to put them to the nominal setting failed. will try it tomorrow. All BWC modules turned back to nominal values. this was done during Run 48546.					
Sat Mar 30 04:28:05 2002	48551	chiang	Routine	General	RSSC HV
Check the voltage. The voltage are all back to 3450. except for 5a at 3300 5b at 3350 and 6 at 3250.					

3 Conclusions

There is sufficient evidence to add runs 48534, 48542,48543,48547 to the bad run list. This has been done to both the \$PASS2_RUN/bad_run.02002 run list for pass2 processing. Also, these runs have been added to the bad_run_02.function used in the comis analysis.

We are unable to allow runs into the sample where critical detectors are not working, so we must take a acceptance loss. KB_{Live} for these runs equal 6.4×10^9 which is 0.38% of the current KB_{Live} .

The Elog indicates further problems with the RSSC during a longer run range. The RSSC have a much smaller impact on PNN2 than PNN1 since many events do not have the range to get to the first RSSCs.